

ANNUAL REPORT  
OF THE  
*Medical Officer of Health*  
FOR THE  
CHELMSFORD  
RURAL SANITARY AUTHORITY  
FOR THE YEAR 1894.

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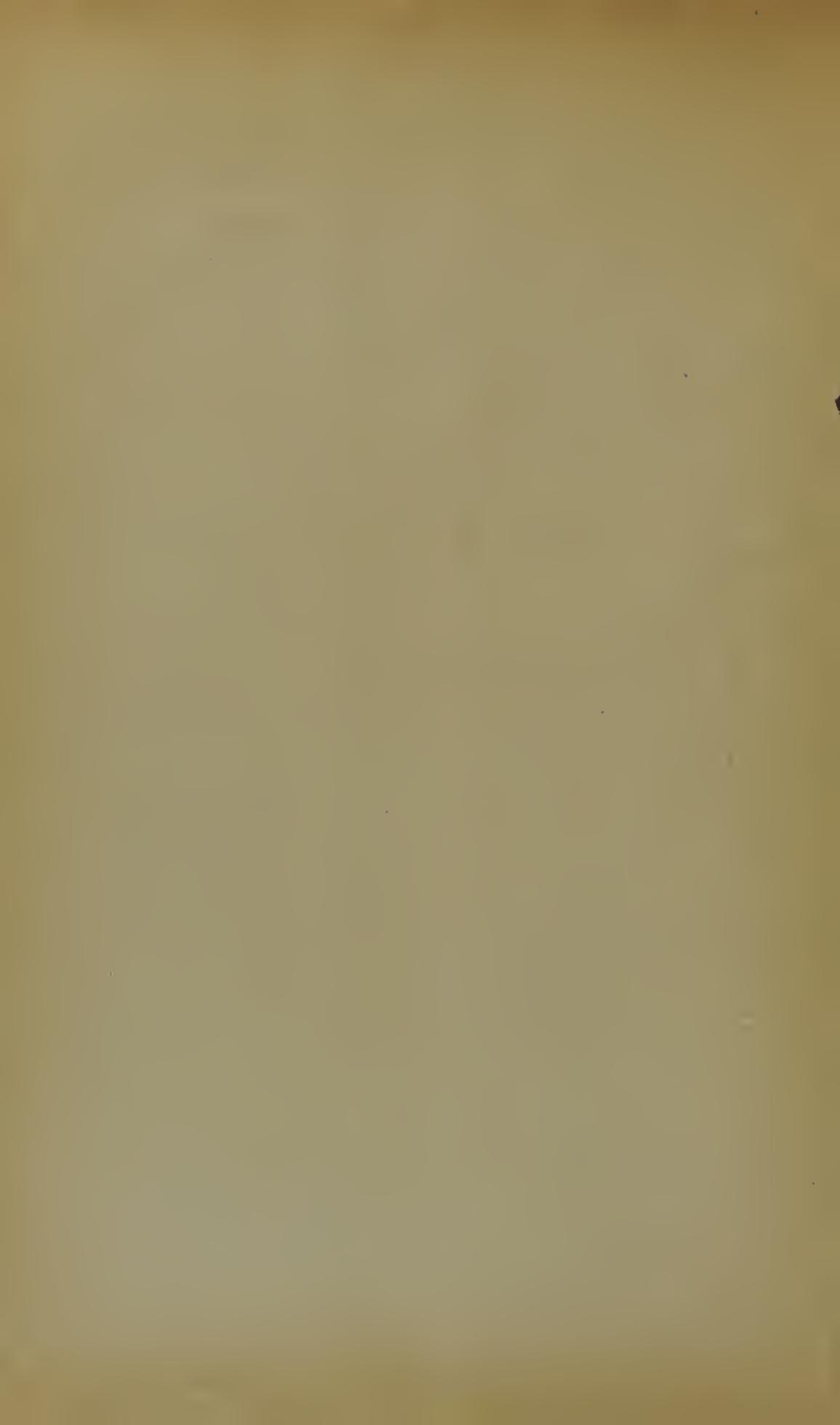
JOHN C. THRESH, D.Sc. (LOND.) M.B., B.C.H. (VIC.)  
D.P.H. (CAMB.) MEDICAL OFFICER OF HEALTH.

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CHELMSFORD:  
PRINTED BY JOHN DUTTON, 8, TINDAL STREET.

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# *Chelmsford Rural Sanitary District.*



Sub-Registration District.			Area in Acres.	Population. Census, 1891.
1. Chelmsford, part of.	One parish	...	692	293
2. Ingatestone.	Eleven parishes		26,541	6,175
3. Writtle.	Six	...	18,079	5,060
4. Great Waltham.	Eight	...	19,080	5,133
5. Great Badlow	Six	...	15,033	6,513
	Total	...	79,425	23,174

	Population.	No. of inhabited houses.	No. of uninhabited houses.	No. of houses building.
1881	23,130	5,066	377	6
1891	23,174	5,102	319	17

TO THE CHAIRMAN AND MEMBERS  
OF THE  
RURAL DISTRICT COUNCIL.

GENTLEMEN,

The year which has just passed will always be a memorable one in the Sanitary Chronicles of the Chelmsford Rural District. It was the last year during which the sanitary condition of the District was watched over by the Poor Law Guardians, acting as the Rural Sanitary Authority, and it was very appropriate that the Board, which has done so much to improve the condition of the District, should complete certain important works it had for some time been contemplating, viz., the supplying of water to several thinly-populated parishes situated on the London clay where good water had previously

been almost inaccessible ; the erection of an Isolation Hospital ; the adoption of Bye-laws with reference to the prevention of nuisances from privies, house refuse, etc. ; the regulation of offensive trades ; the erection of houses and other buildings. It is also singularly apposite that the mortality statistics for the past year should be more favourable than any previously recorded, shewing a lower death-rate at all ages and from all diseases, and more especially from the Infectious Diseases, than for any previous year of which there is any chronicle. The new Sanitary Authority, the " Rural District Council," takes over a District which has been admirably supervised, and I have no doubt will endeavour to emulate the honourable example of its predecessor.

WATER SUPPLIES.—Under the old Authority the water supplies of the District received great attention. Waterworks were established at Great Baddow, which continue to furnish that village and Springfield with a constant supply of pure water under considerable pressure.

The village of Widford is supplied from Chelmsford, by arrangement with the Corporation of that Borough.

At Ingatestone water is also carried by mains to all the houses in the village.

From a splendid spring at Danbury, water is pumped by a ram for the supply of the village, and another portion is conveyed by gravitation to Bicnacre, Woodham Ferris, East Hanningfield, Rettendon and Runwell.

At Great Waltham a ram pumps water from a spring to supply the village.

At Little Waltham a spring supplies the village, the water rising at a sufficient elevation to obviate the necessity for pumping.

In many other parishes public wells have been sunk and pumps fixed for the convenience of the inhabitants.

Plans for providing two other villages with a constant supply of water under pressure have been submitted to the Local Government Board, and the newly-appointed Sanitary Authority will, I hope, carry them to a successful conclusion.

Under the Rural Sanitary Authority, also, certain villages have been provided with proper systems of sewerage.

Springfield, Widford and Baddow, practically suburbs of Chelmsford, are connected with the Urban system of sewers, and the sewage proceeds to an outfall in the parish of Springfield, where it is dealt with upon an irrigation farm.

At Ingatcstone there is also a sewerage system, and the sewage is used for irrigation purposes.

During the past year a small Model Isolation Hospital (again to be referred to), with Caretaker's house, has been erected, and I have no doubt will prove to be one of the most useful works the old Authority carried out.

The various Bye-laws adopted will in time cause a marked improvement in the sanitary condition of the District, and fully justify the time and trouble taken in their preparation and consideration.

It may also be added that these improvements were not carried out during times of panic, or on account of the prevalence of epidemic disease, but that they were progressive, the results obtained in all cases being sufficiently satisfactory to justify and encourage the Authority to proceed to consider other and further improvements.

The newly-formed Rural District Council takes over and benefits by all the works executed by its predecessor, and doubtless will continue to adopt the same policy of progress, proceeding to carry out the works of water supply and of sewerage which the old Board had under consideration at the time it ceased to exist. The nature of these works will be discussed in a later section of this Report.

SANITARY IMPROVEMENTS EFFECTED DURING  
THE YEAR.

*Water supply to Woodham Ferris, Rettendon, East Hanningfield and Runwell.* This Scheme, which has been fully described in previous Reports, was completed early in the year. The Surveyor has been justly congratulated upon completing the work under the estimated cost of £3,000, and upon the satisfactory manner in which the whole has been carried out. The great benefit conferred upon the Districts through which the mains run was more quickly appreciated by the inhabitants than I had anticipated, and not only has the water been laid on to every group of houses within reasonable distance of the mains, but in most cases the water has actually been carried into the cottages or into the yard adjoining. Applications for extensions of the mains have been received from all directions, everybody desiring to participate in the advantages arising from a copious supply of pure water upon their premises. Already it has been decided to extend the main from Bienacre along the Purleigh road to Slough House, a distance of 2,200 yards, to supply the cottages and farms *en route*. The work is now being commenced, the Local Government Board having sanctioned the necessary Loan. Further extensions to Battles Bridge, Runwell village, and even to the adjoining Rural Sanitary Districts, are now being considered, and will probably be commenced, if not completed, during the coming year.

At West Hanningfield a public pump has been fixed near the Leather Bottle public-house to supply the cottages around with wholesome water. At Stock the public well on the Green has been re-constructed, and the pump placed in a more convenient position.

At the Waterworks, Great Baddow, a duplicate gas engine has been fixed and the tank re-painted. At the same time, a permanent iron staging was placed round the tank, so that in future it can be painted or repaired without incurring the heavy cost of erecting scaffolding.

Probably the most important work executed during recent years is the provision of an Isolation Hospital, which has just been completed. The Hospital is from the Model plans of the Local Government Board, and comprises two wards, for three and two beds respectively, and a kitchen or nurses' room. It is so arranged that a similar block can be added to it at any time without affecting the present structure in the least. The cottage in which resides the Caretaker and his wife, who acts as Nurse, contains four bedrooms and a box-room, and downstairs, besides the living-room, kitchen and scullery, there is a room for the Medical Officer, which can be entered without going into the house. The Hospital stands on an elevated site at the back of the Baddow Road, on the south side, and is most conveniently situated. Three acres of ground were purchased for £500, but only a little more than an acre has been fenced in (with corrugated iron), as the remainder is being worked at a profit for the supply of gravel for the repair of the roads in the district.

The estimates sent in by the contractors for the erection of the Hospital and cottage varied from £995 to £1,230, and the lowest was accepted. Under the supervision of the Surveyor the work was satisfactorily completed, but it is found that a few trivial alterations are necessary. The furnishing has cost about £100, and a very good ambulance has been made at a cost of less than £20. The first patients were received on January 1st of this year. They were removed a distance of eight miles, and the arrangements made for moving patients proved quite satisfactory. The "Rules and Regulations" are still under consideration, but it gives me pleasure to report that it has already been decided that the families of labourers shall be admitted free of any charge.

Another important matter to chronicle is the adoption of the under-mentioned Bye-laws, based upon the Model Bye-laws of the Local Government Board :—

1. With respect to The Cleansing of Footways and Pavements.

The Removal of House Refuse, and  
The Cleansing of Privies, Ashpits  
and Cesspools.

2. With respect to Nuisances.

3. With respect to New Streets and Buildings. These include Bye-laws affecting the laying-out of new streets, of secondary means of access where necessary for the removal of house refuse, etc. The paving of yards, height of rooms, structure of roofs, floors and hearths, and keeping water closets supplied with sufficient water for flushing.

4. With respect to Slaughter Houses.

The first and last named do not affect the whole of the District, the villages in which the Rural District Council undertakes the scavenging being omitted from the former, and certain very thinly-populated parishes from the latter.

#### IMPROVEMENTS CONTEMPLATED AND REQUIRED.

*Drainage and Water Supply for the Village of Writtle.* In previous Reports I have referred to this subject, and in a Special Report presented last year a detailed description was given of the insanitary condition of the village. As a result, the Surveyor elaborated a scheme for providing Writtle with a system of sewers and with a water supply. Many difficulties were encountered—first, in finding a sufficient supply of pure water; second, in rendering this supply available at a reasonable cost; third, in devising a means of satisfactorily disposing

of the sewage. Finally, having overcome these, an application was made to the Local Government Board for power to borrow £950 for works of sewerage and £1,800 for works of water supply. On June 10th, Col. Luard, R.E., held a public enquiry in the village, and at the present time the Authority is in correspondence with the Local Government Board with reference to details of the Scheme which, in the opinion of the Engineer of the Board, require amendment. As a large area of land has just been divided and sold as building plots, and plans for about 12 new cottages have been passed, it is to be hoped that ere long an agreement will be arrived at, and the works be proceeded with.

The water will be derived from springs lying some distance from the village and from any human habitation, and will be pumped by means of a wind engine into a large tank or reservoir situated at Oxney Green, at a level just sufficient to allow of all parts of the village being supplied therefrom by gravitation.

The sewage, it is intended to dose with, Alumino-Ferric and then allow to subside in tanks, the clarified effluent being discharged upon three acres of land for further purification before being allowed to flow into the river.

*Water Supply to Little Baddow.* On November 1st, Col. Langton Coke held an enquiry on behalf of the Local Government Board, the Sanitary Authority having applied for sanction to borrow £320 for works of water supply for this parish. There was no opposition. It is proposed to tap the ground water in the gravel above the village, collect this in a small reservoir or well, and then convey down the hill to supply the houses *en route*. The only cottage near the site is lower down the hill, and its drainage will be piped still lower, so as to render contamination impossible.

*Maryettting Water Supply.* The water yielded by the wells here is excessively hard and limited in quantity. Several attempts have been made during the year to find a source which could be utilized, but so far we have been unsuccessful. The subsoil is Boulder clay resting upon London clay. The nearest patch of sand and gravel is over a mile distant, and yields a very pure water. The expense of bringing the water such a distance has as yet been considered prohibitive.

Many other portions of the District, including West Hanningfield, Stock, Battles Bridge, part of Runwell, and Butts Green (Sandon), have water supplies either very limited in quantity or very unsatisfactory in quality. The proposed extensions of the water mains starting from Danbury would give an abundant supply to most of these areas, but the population being very scattered, the expense per house supplied would be excessive. Fortunately, however, the Great Eastern Railway Company is anxious to secure better supplies for their stations at Battles Bridge and Wickford, and negotiations are now in progress for carrying the mains to these two points. It is probable also that there will be a further demand for water at Wickford, although the village is just outside the Sanitary District. A very reasonable annual payment by the Railway Company would enable the above extension to be carried out with benefit to all concerned.

At the Isolation Hospital it has already been decided to erect a large shed in which to store the van which contains the Tent Hospital, and also for keeping the Ambulance. At present we possess no Disinfecting Apparatus, the price asked by English makers for a Steam Apparatus suitable for a small Hospital being considered excessive. As soon as I am convinced that one of the cheaper foreign machines is really effective, I shall ask the Authority to purchase one. A portable machine which could be stored at the Hospital and taken from place to place as required has been suggested, but at present I am inclined to think that a fixed Apparatus would be more

generally useful. I am hoping that the profit made by the sale of gravel from the Hospital site will soon be sufficient to purchase the Apparatus.

The Scavenging undertaken by the Authority and done by Contractors has not been satisfactory. At my suggestion a Committee considered the desirability of purchasing a horse and cart and undertaking the work themselves, collecting not only the contents of the pail closets at Writtle, Waltham and Broomfield, but also the house refuse at Springfield. It was however, decided to advertise for a man to contract to find a horse and cart and give his whole time to the service of the Authority. This has just been done.

The greatest number of Nuisances in the District arises from privies with defective cesspits, or from privies without cesspits. Very few cottages possess any receptacle for house refuse, and the usual plan is to dig a hole in the garden as near as possible to the back door, and to throw into this ashes and refuse of all kinds, and frequently also the slops. These so-called "bumbies" abound. In summer the stench from them is often sickening, and, as the people say when complaining of *other people's* bumbies, "enough to breed a fever." The Authority has been somewhat lax in enforcing certain Sections of the Public Health Act, and it may be advantageous if I once more remind them of certain statutory duties which they are inclined to forget.

Public Health Act, s. 36. If a house within the district of a Local Authority appears to such Authority by the report of their Surveyor or Inspector of Nuisances to be without a sufficient water closet, earth closet, or privy, and an ashpit furnished with proper doors and covering, the Local Authority shall, by written notice, require the owner or occupier of the house, within a reasonable time therein specified, to provide a sufficient watercloset, earth closet, or privy, and an ashpit furnished as aforesaid, or either of them, as the case may require.

If such notice is not complied with, the Local Authority may, at the expiration of the time specified in the notice, do the work thereby required to be done, and may recover in a summary manner from the owner the expenses incurred by them in so doing. .

Public Health Act, s. 40. Every Local Authority shall provide that all drains, water closets, earth closets, privies, ashpits, and cesspools within their district be constructed and kept so as not to be a nuisance or injurious to health.

Public Health Act, s. 41. Under this section, when a nuisance has been found to arise from a defective drain, water closet, earth closet, privy, ashpit or cesspool, if the owner or occupier disregard the notice given by the Authority to abate the nuisance, the Local Authority may execute the works necessary, and "recover in a summary manner from the owner the expenses incurred by them in so doing."

The new Bye-laws with respect to the removal of house refuse, cleansing of privies, etc., will prevent nuisances arising from accumulations of filth in cesspits, etc., *if* they are enforced. The Bye-laws had been under the consideration of the Board for some six years before they were adopted, and I am sorry to say that many Members who were present when it was finally decided to ask the permission of the Local Government Board to adopt them, afterwards declared that they knew nothing of their nature, when certain infringements were brought to the notice of the Board. As these Bye-laws are of the highest importance, I hope that each Member of the new Rural District Council will make himself generally acquainted with their scope and purpose.

Minor nuisances are generally neglected because the Board has hitherto considered them too trivial to merit its attention. Once, during the previous year, the Members were incited to action. After inspecting Woodham Ferris village, in company

with the Inspector, I produced a Report showing that filth nuisances occurred on the premises of nearly every cottage, and strongly urged them to take some action. A Committee was appointed to visit the village with the Officers, and the result was that orders were served for abatement in every instance. These have since been attended to, no legal proceedings having been found necessary. It is not a wise plan, however, to neglect such nuisances until a whole village becomes grossly insanitary, and then to take action *en bloc*.

I should like also to refer here to an erroneous notion generally prevalent, especially amongst agents and owners of cottage property, that the Authority cannot interfere with insanitary cottages unless the condition is so bad that they are absolutely unfit for human habitation. According to subsection 1, s. 91, Public Health Act, proceedings can be taken where the premises are in such a state as to be a nuisance or injurious to health; and according to s. 97, "where the nuisance proved to exist is such as to render a house or building, in the judgment of the Court, unfit for human habitation," a closing order may be granted. It is evident, therefore, that the Legislature considered that premises might be in an insanitary condition and require action on the part of the Authority, without such conditions being so serious as to render the house unfit for habitation. There are many cottages in the District with damp floors and walls, or defective roofs or spouting, or with defective window frames and doors, which are damp or draughty, or both, and yet are not sufficiently bad for me to formally report as being unfit for human habitation. The Rural District Council can do much to improve the sanitary condition generally of the labourers' cottages by giving attention to the above sections of the Public Health Act.

## PERIODIC AND OTHER INSPECTIONS.

## COMPLAINTS RECEIVED.

The periodic and other inspections which have been made have resulted in the discovery of many nuisances, some of which had previously been reported but not abated. However, a great proportion of the nuisances detected, ultimately are abated in a more or less satisfactory manner, after repeated visits and the writing of numerous letters. Most trouble has been given during the year by the nuisance arising from the Bone and Manure Works at Springfield. These works have recently been enlarged, or rather work has been carried on more regularly, and the effluvium arising therefrom has been repeatedly complained of by the people residing in the locality. At first it was thought that the nuisance arose from the process of fat boiling which had only recently been commenced, and upon my representing to the owners that the works were unsuited for the purpose, the boiling was discontinued. This, however, did not entirely abate the nuisance which I traced to the escape of the effluvium from the fermenting bones in the bone-hole. This "hole" was a wooden shed, through the crevices of which the steam, etc., escaped, and when the wind was in certain directions the smell was offensively perceptible in the main street and cottages near. Legal proceedings were commenced against the owners, but the hearing of the case was postponed from time to time until certain improvements contemplated were carried out. A new bone-hole has been erected and the steam and vapours arising from the bones is drawn through a furnace fire and escapes from a lofty chimney. The steam from the boiling pans first passes through a condensing arrangement and then through the furnace. These have only been com-

pleted during December and it is too early yet to say whether the result will be perfectly satisfactory. In consequence of the annoyance caused by this offensive trade, the Authority obtained power to make Bye-laws with respect to all the Offensive Trades enumerated in the Public Health Act, and such Bye-laws have been made and have just received the sanction of the Local Government Board. They apply to all our more populous parishes. The only other offensive trade in the district, a wash-leather mill, has not given rise to any complaint.

Serious complaint was made in the Autumn of the smell arising from the sewage tank at New Hall (a Nunnery and Ladies' School), Boreham. The complaint I found was well founded. The tanks are now emptied more frequently and the sewage as it enters dosed with Alumino-ferrie. The result, so far, is satisfactory. A large number of insanitary cottages have been reported, and eight have been formally represented by me as unfit for human habitation. The Inspector's report shews that 22 cottages have been closed. Some of those not yet repaired have been on the agenda paper months, but no action has been decided upon. Several new cottages have been erected in Good Easter and Mashbury (the adjoining parish) probably on account of the demand for cottages here having been made so widely known by the discussions at the Board, when the proposal that the Sanitary Authority should erect cottages under the Housing of the Working Classes Act was under consideration. Some of the worst cottages have been put in repair, but others yet remain in a dilapidated condition.

In Springfield and Ingatestone there are houses on the side of the main roads which are being allowed to become ruinous and are a danger to the public. Our Clerk having ruled that it is the duty of the County Council to deal with such dangerous structures, nothing will probably be done until someone is injured.

During the Summer the fold yards at certain dairy farms were found in a very filthy condition on account of the scarcity of straw. As bedding also was scarce the cows were plastered with manure and the milk incurred serious risks of contamination.

In March, the Medical Officer to the County Gaol (Springfield), reported that he had examined the water supply to that establishment and had found it polluted. As the water is furnished from our mains, I examined the water, and found it of the usual quality. I suggested that the contamination occurred within the building, and this proved to be the case. The cistern when examined was found to contain a dead rat, the remains of a bird and other filth. When the cistern was cleansed out the water was found no longer to be affected. This is a good example of the danger arising from the use of storage cisterns. As the supply is constant the utility of such storage is questionable.

In the same month I received a report that a pig, believed to be diseased, had been killed at Danbury, and that its owner intended the flesh to be used for human food. I went over, condemned the carcase and had it buried at once. On several occasions during the year I have been consulted by School Managers about the Ventilation of School and Class-rooms, and the provision of proper sanitary arrangements for the children and teachers. My advice has generally been followed and with satisfactory results. For the closets I invariably recommend pails and the use of dry earth and ashes. Some labourer is then paid a small weekly sum for removing the contents, cleansing and returning the pails. During the past two years the sanitary condition of the school premises generally throughout the District has been decidedly improved.

The Sewage Farm belonging to the Urban and Rural Authorities has given rise to no complaint, but during the summer I examined several samples of the effluent flowing into the Chelmer. The result was not altogether satisfactory, purification being far from complete. If the County Council paid any attention to the condition of our rivers, doubtless they would insist upon a higher standard of purity being reached.

A considerable number of samples of water have been examined during the year, leading in many cases to the detection of pollution, or confirming suspicions roused by an examination of the source of the water. In several instances the surroundings have been improved or safer supplies obtained, but in others it has not been found practicable to take any action, water of better quality not being obtainable at a reasonable cost.

Two summonses only have been taken out during the year. The first was served upon a young man at East Hanningfield who persisted in going into the village whilst suffering from Scarlet Fever. When desquamating he ignored my instructions to avoid all public places and at my request a prosecution was instituted and a small fine, with costs, was imposed by the magistrates. The second summons, against the Springfield Manure Company, has already been referred to.

## PREVALENCE OF INFECTIOUS DISEASES.

During the year 191 cases of Infectious Disease have been notified. Their distribution is given in the subjoined table.

	Diphth- eria and Croup.	Typhoid Fever.	Scarlet Fever.	Erys- ipelas.	Small Pox.	Total.
Writtle ...	6	1	10	4	0	21
Roxwell ...	11	0	6	1	0	18
Broomfield ...	0	0	4	1	0	5
Springfield ...	3	0	4	13	1	21
Great Baddow ...	3	0	5	0	0	8
Little Baddow ...	1	0	0	0	0	1
Danbury ...	0	1	1	0	0	2
Sandon ...	0	0	10	0	0	10
Ingatestone & Fryer- ning	4	3	1	0	0	8
Stock & Buttsbury ...	6	0	0	2	0	8
Marguretting ...	2	0	0	0	0	2
Runwell ...	3	0	0	0	0	3
Rettendon ...	12	0	0	0	0	12
Woodham Ferris ...	4	1	20	0	0	25
The Hanningfields ...	5	0	7	2	0	11
Widford ...	2	0	0	1	0	3
Great Waltham ...	1	2	8	3	0	14
Little Waltham ...	2	0	0	0	1	3
Boreham ...	7	0	0	0	0	7
Great Leighs ...	1	0	5	0	0	6
Good Easter, Chignalls, Mashbury, Pleshey, and Little Leighs	0	0	0	0	0	0
Total ...	73	8	81	27	2	191

The number of notifications received each month will be found in Table VII. in the Appendix.

Most of the outbreaks of disease I have to record have been of a very mild type. This is well brought out upon comparing the past year with its three predecessors (Table VII). The number of cases notified has been only slightly lower than in 1892 and 1893, yet the deaths from those diseases were very much lower. In 1891 the difference was still greater.

					No. of cases Notified.	No. of Deaths.	Proportion of Deaths per cent.
1894	...	...	...	...	191	10	5·2
1893	...	...	...	...	227	20	8·8
1892	...	...	...	...	204	21	10·3
1891	...	...	...	...	113	19	16·8
1890	...	...	...	...	97	10	10·3

Every year, therefore, since the Notification Act came in force the severity of the diseases notified (taken collectively) has been decreasing. This is more particularly the case with Scarlet Fever and Diphtheria (including Diphtheritic Croup.)

DIPHTHERIA.				SCARLET FEVER.			
	No. Notified.	No. of Deaths.	Case Mortality.	No. Notified.	No. of Deaths.	Case Mortality.	
1894	73	6	8·0 p.c.	81	1	1·2	
1893	80	11	13·8	84	1	1·2	
1892	98	12	12·2	55	4	7·3	
1891	43	11	25·6	30	2	6·7	
1890	38	5	13·2	32	1	3·1	

To what is this due? A possible explanation is that a larger proportion of cases of these diseases are now brought under the notice of the Medical Practitioners and therefore notified, whereas during the first and second years of notification, when the requirements of the Act were not widely known, most of the slight cases were not reported. This I think is the true explanation with reference to Diphtheria, for there is a decided tendency now to notify all cases of infectious sore throats as Diphtheria. This tendency certainly errs on the side of safety, but it completely nullifies the value of our statistics. In the interest of the Public Health, however, it is better to have doubtful cases notified and watched, than to risk the spread of Diphtheria by waiting until the diagnosis is absolutely certain. Unless the Medical Attendant states that he believes the disease to be Diphtheria it would in

most cases be quite impossible to secure any degree of isolation. The practice of medical men when called in to cases of an infectious character varies widely. In some practices I find invariably when I call at the infected house, that the patient or patients are isolated as completely as possible in a properly-prepared room, and that a sheet soaked in some disinfectant is hung over the door of the room. In other districts no such precautions are generally recommended or enforced, and it is not unusual to find infected children surrounded by the others not yet attacked. This applies more particularly to slight cases of Diphtheria. In my opinion, if the case is sufficiently suspicious to warrant notification it is sufficiently serious to necessitate the most complete isolation possible under the circumstances. If my medical confrères would all assist me by enforcing the isolation of cases notified, it would greatly help to reduce the prevalence of the disease.

The effect of more complete notification, does not, however, in my opinion, explain the decreasing mortality from Scarlet Fever. I am quite convinced that the disease lately has been of a milder type, and that many slight cases have escaped notification. The very mildness of character assists in the spread of the disease and it, therefore, happens that when the type is mild the number of cases increase, whilst when the type is severe and the cases well marked, more care is taken and there is less difficulty in coping with the epidemic. Judging from mortality statistics alone it has been argued that Scarlet Fever has a tendency to increase rhythmically, attaining a maximum every five or six years, but judging from our experience it is not the prevalence which affects the mortality so much as the virulence of the poison causing the disease, since in years of considerable prevalence we may have very few deaths, whereas in other years, with fewer cases we may have many more deaths.

We may reasonably hope now, however, to reduce both the number of cases and the mortality from Zymotic Diseases by the prompt removal of the cases from overcrowded houses,

but to do this will require that we should have the confidence of the patients and their relatives, so that consent will be readily given for removal. The necessity for this is emphasised by what has recently occurred in a cottage at Bienacre. A child, one of a family of seven, all residing in the same house, was attacked with Scarlet Fever, but the parents would not listen to the advice of their medical attendant or myself and refused to allow the sufferer to be taken to the Hospital. The consequence has been that other five children went down in rapid succession, and the mother has six patients to nurse instead of one. At my last visit these were all in one bedroom, three in each of two beds. Even now when I offered to remove some of them the offer was refused. This is an instance of how disease may be spread in spite of all the efforts of a Sanitary Authority to arrest it. I hope, however, that I may not have occasion in future to record any such foolish action, or mistaken kindness, on the part of the parents of children suffering from infectious disease.

### Small-pox.

For several years no case of Small-pox had occurred in this District, but twice during last year was the disease imported. The first case was that of a young lady who had been attending a patient recovering from an attack of Small-pox. The second was that of a youth who had been in contact with a brother suffering from Small-pox at West Ham. In both instances the patients were isolated in their own homes, the other inmates and the neighbours re-vaccinated, and every care taken to prevent the infection being conveyed from the houses. Our efforts were perfectly successful. There is little doubt that re-vaccination enables us to cope with this disease most effectually, and where persons in the least degree likely to be infected will submit to re-vaccination (or to vaccination if not already vaccinated) Small-pox can always be kept in check, in fact an outbreak of this disease is more easily stamped out than any other Zymotic Disease we have to combat.

### Typhoid Fever.

The seven cases which have occurred during the year have been widely distributed, but six of them occurred in the Autumn. *Vide Table VII.*

1. A lad aged 9. Could not be accounted for.
2. A gentleman who had recently returned from India. Could not be accounted for.
3. A girl, aged 11. Sent down for a holiday from London and was ailing when she arrived here.
4. A servant, aged 26. Sent from her situation in London because she was ill.
- 5 & 6. A servant, aged 21, sent home from her situation whilst in the early stage of the fever. Her sister, aged 16, went to fill her place, and one of the first things she did was to wash some soiled linen left behind by her elder sister. She became ill, was sent home and developed Typhoid Fever.
7. A lad, aged 7, who about 20 days before being attacked had visited a town where Typhoid was prevalent. Insanitary conditions, however, at his home.

Four at least of the above cases are typical of the way in which Infectious Diseases are brought into our Rural Districts. In only one instance was there even the slightest suspicion of local insanitary conditions being the cause of the disease.

### Puerperal Fever.

The only case of Puerperal Septicaemia notified (blood poisoning following child-birth) occurred in one of a row of cottages in which the drains were notoriously defective.

### Scarlet Fever.

Scarlet Fever was very prevalent in the early part of the year (January and March) *Vide Table VII.*, and has again commenced to spread in the late Autumn. One fourth of the whole number of cases occurred in the parish of Woodham Ferris. It was prevalent there when the year commenced, and several fresh houses became infected soon after a school treat had been held, and I found that at least one child from an infected house had attended. In the Autumn some form of Throat illness, upon which I hope to report fully shortly, attacked the school children, and whilst this has been prevalent cases of Scarlet Fever and Diphtheria have been notified.

Other cases which occurred early in the year were extensions of epidemics prevalent at the end of the previous year.

In March, a suspicious case of illness, and the prevalence of Sore Throat was notified to me by the Rector of Sandon. Upon visiting the children absent from school I discovered four cases of Scarlet Fever and a number of other children having or recently having had sore throats but no rash. How the disease was introduced I was not able to discover, nor was it certain that the cases of sore throats were not all due to a mild attack of the disease. Ten children ultimately developed Scarlet Fever, but twice that number had more or less sore throat. The school attendance was considerably reduced and acting upon my advice the Rector closed the schools for three weeks and the outbreak came to an end.

The November cases were widely scattered. Five cases occurred in one house at Great Waltham and were the only cases in or near the parish. The father was first attacked with sore throat and severe rheumatic pains. The mother and three children were attacked successively at intervals of a few days. The fourth case only, developed a typical rash and

as one or two of the earlier cases now shewed slight signs of desquamation the diagnosis of Scarlet Fever seemed conclusive. The fifth and last case alone peeled freely.

Age and sex distribution—

	Under 1 year.	1-5	5-10	10-15	15-25	25-35	Over 35	TOTAL
Males .....	0	4	15	10	4	2	0	35
Females.....	0	6	23	11	5	1	0	46
TOTALS .....	0	10	38	21	9	3	0	81

**Diphtheria and Croup.**

Two cases of Croup only have been notified during the year, both of which proved fatal. It is now generally accepted that of the several diseases included under the name of Croup only that form which is Diphtheritic in origin is subject to notification. In one or two instances where there has been a doubt as to the nature of the disease, I have been consulted, but as there was no evidence of Diphtheria the cases were not notified. Although in these instances there was no evidence of infectiousness either before or after the attack, this alone is not proof of their non-diphtheritic character, since I have often observed that a fatal case of Diphtheritic Croup may occur in a cottage without any other children being attacked. This is probably due to two causes (1) the rapidly fatal course limiting the time during which the infected child is in the house, and (2) the serious nature of the case causing the parents to take unusual precautions to prevent the other children becoming infected.

Whilst it is difficult to distinguish between these rapidly fatal cases of Diphtheria and other forms of Croup, it is equally difficult to distinguish between mild cases of Diphtheria and various forms of sore throat. Clinically it is often impossible to say whether a patient is suffering from Diphtheria or not, and yet it is very important that an accurate

diagnosis should be made. If it be regarded as Diphtheria when it is not, the patient and his or her family may be put to great and unnecessary inconvenience and may suffer great pecuniary loss. If, on the other hand, it be not regarded as Diphtheria and proves to be that disease, the infection may be spread and an epidemic follow.

Recently a mode of diagnosis has been strongly recommended and it is practically claimed to be infallible. I refer to the examination of the membrane or secretion of the throat for the organism which is the cause of the disease. This "Diphtheria Bacillus" as it is called, multiplies freely at the back of the throat and by its growth and the irritation produced thereby it usually causes the formation of a kind of membrane always looked for in this disease. If this membrane be formed in the upper portion of the windpipe (in the larynx) it usually produces speedy suffocation. This is the form of Diphtheria which is called Croup. At the back of the throat, however, it does not cause suffocation, but the products formed by the growing bacilli are absorbed into the system, and being excessively poisonous may cause death. The detection of this special Bacillus, therefore, in the throat of a patient, proves conclusively that he is suffering from Diphtheria. The method of diagnosis above referred to is one which is based upon the search for this Bacillus in the membrane formed on the throat or in the secretion obtained from the throat. Unfortunately it can only be applied by a person who has some practical acquaintance with Bacteriological methods, who has made this disease a special study and who has the necessary apparatus and convenience for conducting such researches. Given all these it is possible to make an examination of a piece of membrane or of a little secretion and decide whether it contains the Diphtheria Bacillus or not. If the organism is found the disease is undoubtedly Diphtheria, but unfortunately my experience does not lead me to agree entirely with those who say that where the organism is not found, the disease is certainly not

Diphtheria. The probability is that it is not Diphtheria, but it is always possible that the bit of membrane or secretion examined contained no living Bacilli, hence they cannot be cultivated nor their presence conclusively demonstrated. The examination of the throat one day may shew no Bacilli, whilst upon another they may be discovered. This especially refers to mild cases, which are the very ones whose true character we are most anxious to discover. The usefulness of this method of diagnosis, therefore, is limited. During the past year I have made Bacteriological examinations of a considerable number of cases, and the very few occasions upon which I have been able to demonstrate the presence of the Diphtheria Bacillus proves either that the method can only be relied upon to a limited extent, as I believe, or that the majority of the cases notified are not Diphtheria. That the latter surmise is also true is possibly indicated by the very low mortality amongst these cases. Thus during last year out of 71 patients notified to be suffering from Diphtheria only four died. A mortality of 6 per cent. The usual mortality is from 20 to 40 per cent. In those instances, to which I have already referred, when no attempt at isolation was made, the children being allowed to run about during the whole illness, the fact that there was no spread of the disease and that no serious consequences followed is in favour of the non-diphtheritic character of the affection.

The number of cases which have been reported during the year in the various parishes has already been given, and Table VII. shows that an excessive number of the cases occurred during the Autumn.

Age and sex distribution.

	1-5 years.	5-10	10-15	15-25	25-60	Over 60	TOTAL.
Males .....	1	11	5	6	3	1	27
Females .....	7	13	10	7	7	0	44
TOTALS ...	8	24	15	13	10	1	71

The two cases of Croup (a female aged 10 and male aged 4) occurred, the former in Writtle and the latter in Danbury. Neither were associated with any outbreak of Diphtheria, and in neither family did any other case occur.

In several instances the infection was brought into the District by servants who had been sent home because they were suffering from Sore Throat. The last instance of this kind occurred in October, when a young man was sent home from London. Shortly after his arrival a medical man was called in and found that he was suffering from Diphtheria, from which he died. His sister who attended him then contracted the disease, and although she recovered from the throat affection she still remains partially paralysed from the after effects. So far as I am aware the infection, in those instances in which the disease was introduced as above, in all cases was limited to the family of the patient.

The limited epidemics which have occurred in Roxwell, Woodham Ferris and elsewhere have been of a very mild type, and associated with numerous cases of Sore Throat almost certainly not Diphtheritic. Thus, at Woodham Ferris, a considerable number of school children were absent on account of Sore Throat, and odd cases of Scarlet Fever and Diphtheria were notified of which it was impossible to trace the channel of infection. A house to house visitation being made, I found many typical cases of Influenza, and the history given of a few of the cases indicated that a mild type of Mumps had possibly also been prevalent. This seemed the more probable since this disease was undoubtedly epidemic in an adjoining parish. Most of the cases of Sore Throat appeared to be due to Influenza, the throat symptoms being most pronounced amongst children, whilst pain in the head and limbs was chiefly complained of by the adults. A search was made for the Bacillus of Diphtheria in the secretions from several throats and in a portion of membrane obtained from one. The search, however, was unsuccessful.

In the Roxwell cases also, the search for the Bacillus was futile, although the most severe cases were selected for examination. Not a single death was attributed to Diphtheria in any of these outbreaks. The four fatal cases which occurred during the year were not connected with any epidemic. One occurred in the Billericay Hospital and belonged to that District, another was that of a youth who came from London whilst suffering from the disease, a third occurred in a house in which there had been a case some six years ago, and could not otherwise be accounted for, the fourth occurred on a farm where there were certain insanitary conditions, and where the horses were suffering from an epidemic of Strangles.

### Erysipelas.

This disease calls for little remark. In no instance was it connected with Vaccination, or with Puerperal Septicæmia. One person whilst suffering from the disease developed symptoms of Diphtheria. A curious series of cases occurred in a family at Great Waltham. One member of the family, in service in London, was attacked with Erysipelas and removed to the London Hospital. Whilst there her mother visited her. The day before she came home, a sister residing at Great Waltham was attacked; a fortnight later the girl from London was again attacked, and three weeks afterwards the father was attacked. The cases were all severe. The family were plithisical, one of the patients had serofulous scars on the neck, and another suffered from Lupus. Whether this condition rendered the family particularly susceptible to the disease or not is impossible to say, but the occurrence of such a series of cases is sufficiently rare to be worth recording.

### Other Infectious Diseases.

Limited outbreaks of Measles and Whooping Cough have occurred in two or three parishes. Mumps recently has been epidemic in Stock, Buttsbury and Rettendon. Influenza has

cropped up here and there throughout the year, and has become more generally prevalent during the past month. There have been singularly few cases of Diarrhoea brought under my notice.

### Zymotic Diseases prevalent at the End of the Year.

Scarlet Fever, Diphtheria (?), Influenza and Mumps (?) in Woodham Ferris ; Mumps in Rettendon ; Whooping Cough in Widford. Influenza in many parishes.

### Mortality Statistics.

TABLE I.

*Death-rate from all Causes.*—The Death-rate for the year is only 12.8, and is probably the lowest ever recorded. One-seventh of the total number of deaths took place in the Union Workhouse, which is outside our District. The actual figures are as under :—

Deaths registered in the District	...	...	...	264
Deaths of Patients in the Chelmsford Infirmary belonging to the District	...	...	...	3
Deaths of Paupers in the Workhouse who belonged to the Rural District	...	...	...	34
				301
Deaths of Aliens	...	...	...	4
				297
Total Deaths	...	...		

The aliens include two persons who died in the Billericay Isolation Hospital, one prisoner in the County Gaol who died of Erysipelas, and one prisoner executed for murder.

The Death-rate was uniformly low, affecting persons of all ages.

*Infantile Mortality.*—539 children were born during the year, and 39 died before attaining the age of 1 year. This gives a mortality of 72 infants per 1,000 births—an unprecedentedly low rate.

*Birth-rate.*—The Birth-rate also has been remarkably low, 22.9 as against 25.4 the mean for the last five years, and 28.0 the mean for the 10 years 1881-90.

*Zymotic Death-rate.*—This is only about one-third the average of the last 15 years, the rate for 1894 being .55 per 1,000 inhabitants, and the mean for the years 1881-94, 1.6. In the Great Baddow District not a single death occurred from any Infectious Disease, not even from Influenza. Fourteen deaths were attributed to this disease, of which 1 occurred in Roxwell, 3 in Ingatestone, 2 in Stock, 2 in Little Waltham, 4 in Boreham, 1 in Woodham Ferris, and 1 in West Hanningfield.

The lowest Death-rate was, as usual, recorded during the third quarter of the year, and the highest during the first quarter. The mortality during the early months was very high in both the Great Baddow and Great Waltham Districts.

The Death-rates in the groups of parishes (Table IV.) has varied somewhat considerably, being lowest in Rettendon, Runwell, Woodham Ferris and the Hanningfields, and the highest in Great Baddow. Singularly, the latter parish has been almost free from Infectious Diseases, whilst they have been almost continuously prevalent in certain of the parishes in the first group. It is gratifying to find that the Death-rate in Ingatestone, Fryerning and Margaretting is again low ; and we may hope that in a few years the average for these parishes will be as low as that for the District generally.

The number of Deaths from Phthisis (Consumption) has been unusually small, only 13 being registered. In the previous year 24 were due to this cause. There has not, on the other hand, been any decrease in the number of Deaths from other diseases of the Respiratory organs.

TABLE I.

## BIRTH-RATES, DEATH-RATES, AND INFANTILE MORTALITY DURING 1894, COMPARED WITH PREVIOUS YEARS.

Period.	Per 1,000 Population.			Deaths of Infants under 1 year per 1,000 Births.
	Birth-rate.	Death-rate all causes.	Death-rate Zymotic Diseases.	
1894	22.9	12.8	.55	72
1893	26.2	14.9	1.68	88
1892	24.5	18.2	1.85	96
1891	26.6	15.5	.95	91
1890	26.8	15.6	2.6	105
1881-90	28.0	15.3	1.65	92

TABLE II.

## QUARTERLY RETURNS OF MORTALITY IN SUB-REGISTRATION DISTRICTS. PER 1,000 PERSONS PER ANNUM.

	1894.				1893.				1892.			
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Writtle ...	15.8	14.2	7.1	11.1	19.8	15.0	13.4	11.9	49.0	18.2	13.4	15.8
Gt. Waltham ...	21.0	10.1	13.2	12.5	12.5	13.2	20.3	21.6	36.6	13.25	13.25	14.0
Great Baddow ...	21.4	17.7	6.7	11.1	17.8	12.5	16.8	14.1	31.9	14.1	12.9	14.7
Ingatestone ...	11.7	11.0	13.0	11.0	14.9	14.25	10.4	12.3	18.1	13.6	7.8	10.3
Chelmsford R.S.D. ...	17.4	13.3	10.0	11.2	15.9	13.1	15.3	14.8	32.6	13.3	11.7	13.5

TARLE III.

DEATH-RATES FROM ALL CAUSES, AND FROM THE  
SEVEN PRINCIPAL ZYMIC DISEASES, AND  
INFANTILE MORTALITY IN THE VARIOUS SUB-  
REGISTRATION DISTRICTS.

Sub-registration Districts.	1894.			1893.		
	Death- rate.	Zymotic Death- rate.	Infantile Mortality.	Death- rate.	Zymotic Death- rate.	Infantile Mortality.
Writtle ...	12.0	.4	72	14.4	1.0	109.
Great Waltham ...	14.2	1.2	69	15.6	3.7	82.8
Great Baddow ...	14.3	.0	76	13.7	1.7	114.
Ingatestone ...	11.3	1.0	75	11.5	.67	61.
Widford Parish ...	6.6	...	...	13.7	...	...

TABLE IV.

DEATH - RATES IN THE PARISHES PER 1,000  
POPULATION.

PARISHES.	Population.	Death- rate, 1894.	13 years, 1881 to 1893.
Boreham, Little Baddow, Danbury and Sandon	2,890	12.8	14.3
Runwell, Rettendon, Woodham Ferris and the Hanningfields ... ... ... ...	2,830	9.5	14.2
Roxwell, Chignall, Good Easter, Mashbury and Pleshey ... ... ... ...	2,155	14.4	15.8
Writtle (including Highwood) ... ... ..	2,487	11.7	15.7
Great Waltham ... ... ... ...	2,285	15.8	15.1
Broomfield, Little Waltham, Little Leighs and Great Leighs ... ... ... ...	2,354	11.45	15.8
Springfield ... ... ... ...	2,582	12.4	15.4
Great Baddow (including Galleywood) ... ...	2,037	17.7	15.9
Margaretting and Widford ... ... ...	815	9.8	17.0
Stock and Buttsbury ... ... ...	1,064	15.0	15.6
Ingatestone and Fryerning ... ... ...	1,659	13.9	17.3

TABLE V.

TABLE of DEATHS during the year 1894, in the Chehnsford Rural Sanitary District, classified according to DISEASES, AGES, and LOCALITIES.

NAMES OF LOCALITIES.	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.										MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.										
	At All Ages	Under 1 year	1 & under 5	5 & under 15	15 & under 25	25 & under 60	60 & upwards	Small-pox	Scarlatina	Diphtheria	Cholera	Bryspelias	Measles	Whooping Cough	Dysentery	Diarrhea and Enteritis	Bronchitis, Phthisis, and Pleurisy	Heart Disease	All Other Diseases	Total.	
Writtle ...	56	9	6	3	5	15	18	Under 5	...	...	...	...	...	...	...	...	...	6	1	2	15
Great Baddow ...	83	11	3	3	2	29	35	Under 5	...	...	...	...	...	...	...	...	5	10	17	41	
Ingatestone ...	60	11	2	4	4	20	19	Under 5	...	...	...	...	...	...	...	...	2	2	9	14	
Great Waltham	63	8	4	3	1	14	33	Under 5	1	2	...	...	...	...	...	...	3	13	7	69	
Part of Chelmsford, Widford	2	...	...	...	...	1	1	Under 5	...	2	...	...	...	...	...	...	1	3	...	5	
Totals ..	264	39	15	13	12	79	106	Under 5	..	1	1	4	1	1	1	1	2	1	1	54	
								5 upwds.	1	1	1	4	1	1	1	1	2	1	1	210	

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

Deaths occurring outside the district among persons belonging thereto ...	37	...	12	25	Under 5	5 upwds.	...	...	...	...	...	...	...	...	...	...	...	...	...	37
Deaths occurring within the district among persons not belonging thereto ...	4	...	3	...	Under 5	5 upwds.	1	...	...	...	...	...	...	...	...	...	1	1	1	3

TABLE VI.

TABLE of POPULATION, BIRTHS, and of NEW CASES of INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1894, in the Chelmsford Rural Sanitary District, classified according to DISEASES, AGES, and LOCALITIES.

TABLE VII.

TABLE OF METEOROLOGICAL DATA, DEATHS, AND OF INFECTIOUS DISEASES.  
YEAR ENDING DECEMBER 31ST, 1894.

SUMMARY of WORK done through the Sanitary Inspector in the Rural Sanitary District of Chelmsford during the year ending December 31st, 1894.

		Total Number for Year	Results of Inspection, &c.
1.	Complaints received	220	
2.	Cottages inspected	904	
3.	Lodging-houses inspected	—	None in district.
4.	Slaughter-houses inspected	19	
5.	Bakehouses inspected	26	
6.	Dairies and Milk Shops inspected	32	
7.	Cowsheds inspected	59	
8.	Workshops inspected	—	No record kept.
9.	Filthy houses cleansed, sec. 46 Public Health Act, 1875	5	
10.	Houses disinfected	105	
11.	Overcrowding abated	13	
12.	Houses placed in habitable repair	67	
13.	Houses closed	22	
14.	Houses erected or re-built, for which "Certificates" were applied for	13	
15.	"Certificates" granted	13	
16.	"Certificates" deferred	—	
17.	Wells sunk or improved supplies of water afforded	1	Vide 18—23.
18.	Wells cleansed or repaired	10	
19.	Wells closed	—	
20.	Defective pumps repaired or new pumps erected to existing wells	7	
21.	Leaky taps repaired where drawing from public mains	203	
22.	Houses connected with sewers	13	
23.	Houses connected with water mains	226	
24.	Earth, pail, or improved Privies constructed or existing Privies altered	39	
25.	Privies and W.C.'s repaired; W.C.'s supplied with water	37	
26.	Cisterns cleansed, repaired, or covered	5	
27.	Animals improperly kept removed	—	
28.	Samples of water taken for Analysis	28	
29.	Samples of food or drink taken for Analysis	—	
30.	Compensation paid for destruction of infected bedding	£1 2s.	
31.	Seizures of unsound Meat, &c.	1	
32.	Nuisances reported or detected	305	
33.	Nuisances abated	320	
34.	Notices served	267	
35.	Summons taken out	2	
36.	Convictions	1	One withdrawn.

(Signed) I. C. SMITH.